

**Supplementary Table 1. Strain-specific genes of strains isolated from bean seeds, deduced by pairwise comparison with close relatives. Short genes (<300 nt) were discarded.**

***Rhizobium phaseoli* CCGM1**

ID	Name	COG	Function
RLPCCGM1_c0006	-	L	hypothetical protein
RLPCCGM1_c0032	-	-	hypothetical protein
RLPCCGM1_c0035	-	-	terminase small subunit protein
RLPCCGM1_c0036	-	-	terminase large subunit protein
RLPCCGM1_c0037	-	-	hypothetical protein
RLPCCGM1_c0038	-	-	hypothetical protein
RLPCCGM1_c0039	-	-	hypothetical protein
RLPCCGM1_c0040	-	-	major virion structural protein
RLPCCGM1_c0041	-	-	hypothetical protein
RLPCCGM1_c0042	-	-	hypothetical protein
RLPCCGM1_c0043	-	-	hypothetical protein
RLPCCGM1_c0044	-	-	hypothetical protein
RLPCCGM1_c0045	-	-	hypothetical protein
RLPCCGM1_c0046	-	-	hypothetical protein
RLPCCGM1_c0047	-	-	cellulosome anchoring protein
RLPCCGM1_c0048	-	-	hypothetical protein
RLPCCGM1_c0049	-	R	acetyltransferase
RLPCCGM1_c0050	-	-	acyltransferase protein
RLPCCGM1_c0060	-	K	Lacl family transcriptional regulator
RLPCCGM1_c0065	-	-	hypothetical protein
RLPCCGM1_c0071	-	P	chloride channel protein
RLPCCGM1_c0072	-	E	hypothetical protein
RLPCCGM1_c0121	-	K	hypothetical protein
RLPCCGM1_c0122	-	S	hypothetical protein
RLPCCGM1_c0132	-	-	LysR family transcriptional regulator
RLPCCGM1_c0146	-	-	hypothetical protein
RLPCCGM1_c0161	-	-	hypothetical protein
RLPCCGM1_c0204	-	S	hypothetical protein
RLPCCGM1_c0205	-	S	hypothetical protein
RLPCCGM1_c0212	-	I	short-chain dehydrogenase
RLPCCGM1_c0242	-	E	membrane alanine aminopeptidase N
RLPCCGM1_c0244	-	-	hypothetical protein
RLPCCGM1_c0286	-	K	transcriptional regulator protein
RLPCCGM1_c0296	-	-	porin
RLPCCGM1_c0321	-	R	hypothetical protein
RLPCCGM1_c0397	-	H	monooxygenase
RLPCCGM1_c0398	-	-	PadR transcriptional regulator
RLPCCGM1_c0403	-	L	regulatory inactivation of DnaA Hda protein
RLPCCGM1_c0407	-	L	adenylate cyclase
RLPCCGM1_c0426	<i>ribD</i>	H	5-amino-6-(5-phosphoribosylamino)uracil reductase
RLPCCGM1_c0434	-	-	hypothetical protein
RLPCCGM1_c0435	-	-	hypothetical protein
RLPCCGM1_c0436	-	-	hypothetical protein
RLPCCGM1_c0437	-	-	acetyltransferase
RLPCCGM1_c0438	-	Q	3-demethylubiquinone-9 3-methyltransferase
RLPCCGM1_c0458	-	M	cellulose synthase catalytic subunit
RLPCCGM1_c0459	<i>celA</i>	M	cellulose synthase
RLPCCGM1_c0679	-	-	periplasmic protein-like protein
RLPCCGM1_c0681	-	E	ornithine cyclodeaminase

RLPCCGM1_c0682	-	M	mandelate racemase/muconate lactonizing enzyme
RLPCCGM1_c0684	-	L	DNA helicase
RLPCCGM1_c0685	-	L	DNA helicase
RLPCCGM1_c0765	-	-	hypothetical protein
RLPCCGM1_c0781	-	L	transposase
RLPCCGM1_c0833	-	-	hypothetical protein
RLPCCGM1_c0834	-	-	hypothetical protein
RLPCCGM1_c0836	-	-	hypothetical protein
RLPCCGM1_c0837	-	-	hypothetical protein
RLPCCGM1_c0840	-	-	phage protein
RLPCCGM1_c0841	-	-	terminase large subunit protein
RLPCCGM1_c0842	-	-	methyl-accepting chemotaxis protein
RLPCCGM1_c0843	-	-	hypothetical protein
RLPCCGM1_c0844	-	-	hypothetical protein
RLPCCGM1_c0845	-	-	major virion structural protein
RLPCCGM1_c0846	-	-	hypothetical protein
RLPCCGM1_c0847	-	-	phage protein
RLPCCGM1_c0848	-	-	hypothetical protein
RLPCCGM1_c0849	-	-	hypothetical protein
RLPCCGM1_c0850	-	-	hypothetical protein
RLPCCGM1_c0851	-	-	hypothetical protein
RLPCCGM1_c0852	-	-	flagellar protein FlgJ
RLPCCGM1_c0853	-	-	hypothetical protein
RLPCCGM1_c0854	-	-	hypothetical protein
RLPCCGM1_c0857	-	-	hypothetical protein
RLPCCGM1_c0858	-	-	phage antirepressor protein
RLPCCGM1_c0863	-	-	hypothetical protein
RLPCCGM1_c0865	-	-	succinoglycan biosynthesis protein exoI
RLPCCGM1_c0869	-	L	phage integrase family protein
RLPCCGM1_c0927	-	F	DNA topology modulation kinase FlaR-like protein
RLPCCGM1_c0939	-	E	polar amino acid transport system permease protein
RLPCCGM1_c0940	-	E	polar amino acid transport system permease protein
RLPCCGM1_c0958	-	H	2-octaprenyl-6-methoxyphenol hydroxylase
RLPCCGM1_c0959	-	H	2-octaprenyl-6-methoxyphenol hydroxylase
RLPCCGM1_c0964	-	-	hypothetical protein
RLPCCGM1_c0978	-	R	hypothetical protein
RLPCCGM1_c0980	-	R	hypothetical protein
RLPCCGM1_c1074	-	G	hypothetical protein
RLPCCGM1_c1131	-	C	hypothetical protein
RLPCCGM1_c1132	-	C	citrate synthase
RLPCCGM1_c1147	-	R	hypothetical protein
RLPCCGM1_c1165	-	L	transposase
RLPCCGM1_c1189	-	S	hypothetical protein
RLPCCGM1_c1191	-	-	hypothetical protein
RLPCCGM1_c1198	-	T	two-component sensor histidine kinase
RLPCCGM1_c1206	-	T	two-component response regulator protein
RLPCCGM1_c1208	<i>cheB</i>	N	chemotaxis protein-glutamate methyltransferase
RLPCCGM1_c1209	<i>cheR</i>	N	chemotaxis methyltransferase
RLPCCGM1_c1219	-	-	hypothetical protein
RLPCCGM1_c1236	-	-	hypothetical protein
RLPCCGM1_c1238	-	-	hypothetical protein
RLPCCGM1_c1242	-	-	micrococcal nuclease (thermonuclease)
RLPCCGM1_c1244	-	-	hypothetical protein
RLPCCGM1_c1246	-	S	hypothetical protein

RLPCCGM1_c1247	-	-	hypothetical protein
RLPCCGM1_c1248	-	-	hypothetical protein
RLPCCGM1_c1249	-	-	hypothetical protein
RLPCCGM1_c1250	-	R	phage endolysin
RLPCCGM1_c1251	-	-	hypothetical protein
RLPCCGM1_c1252	-	-	hypothetical protein
RLPCCGM1_c1253	-	-	hypothetical protein
RLPCCGM1_c1254	-	-	hypothetical protein
RLPCCGM1_c1255	-	-	hypothetical protein
RLPCCGM1_c1257	-	-	hypothetical protein
RLPCCGM1_c1258	-	-	hypothetical protein
RLPCCGM1_c1259	-	-	hypothetical protein
RLPCCGM1_c1260	-	-	hypothetical protein
RLPCCGM1_c1262	-	-	hypothetical protein
RLPCCGM1_c1263	-	-	hypothetical protein
RLPCCGM1_c1264	-	-	hypothetical protein
RLPCCGM1_c1265	-	-	hypothetical protein
RLPCCGM1_c1266	-	-	hypothetical protein
RLPCCGM1_c1268	-	-	SAM-dependent methyltransferase
RLPCCGM1_c1269	-	-	hypothetical protein
RLPCCGM1_c1270	-	-	hypothetical protein
RLPCCGM1_c1271	-	-	hypothetical protein
RLPCCGM1_c1272	-	-	phage protein
RLPCCGM1_c1273	-	-	phage protein
RLPCCGM1_c1274	-	-	hypothetical protein
RLPCCGM1_c1275	-	O	peptidase S49
RLPCCGM1_c1276	-	R	phage portal protein, lambda family
RLPCCGM1_c1278	-	-	hypothetical protein
RLPCCGM1_c1279	-	R	bacteriophage tail assembly protein
RLPCCGM1_c1280	-	-	hypothetical protein
RLPCCGM1_c1281	-	K	hypothetical protein
RLPCCGM1_c1282	-	-	hypothetical protein
RLPCCGM1_c1283	-	-	hypothetical protein
RLPCCGM1_c1289	-	-	hypothetical protein
RLPCCGM1_c1290	-	-	hypothetical protein
RLPCCGM1_c1292	-	-	hypothetical protein
RLPCCGM1_c1294	-	-	hypothetical protein
RLPCCGM1_c1296	-	K	phage repressor
RLPCCGM1_c1299	-	-	hypothetical protein
RLPCCGM1_c1302	-	-	hypothetical protein
RLPCCGM1_c1303	-	-	hypothetical protein
RLPCCGM1_c1315	<i>elaA</i>	R	protein ElaA
RLPCCGM1_c1316	-	S	hypothetical protein
RLPCCGM1_c1388	-	S	hypothetical protein
RLPCCGM1_c1389	-	S	hypothetical protein
RLPCCGM1_c1402	-	S	hypothetical protein
RLPCCGM1_c1417	-	-	tRNA synthetase class II (G H P and S)
RLPCCGM1_c1419	-	T	sensory box/GGDEF family protein
RLPCCGM1_c1424	-	M	muconate cycloisomerase
RLPCCGM1_c1430	-	L	hypothetical protein
RLPCCGM1_c1557	<i>cobC</i>	E	cobalamin biosynthesis protein, pyridoxal-phosphate-dependent aminotransferase
RLPCCGM1_c1576	-	-	LysR family transcriptional regulatory protein
RLPCCGM1_c1585	-	-	hypothetical protein

RLPCCGM1_c1601	-	G	dihydroxyacetone kinase, ATP-dependent
RLPCCGM1_c1602	-	S	hypothetical protein
RLPCCGM1_c1607	-	R	methyltransferase
RLPCCGM1_c1608	-	P	iron-chelator utilization protein
RLPCCGM1_c1614	-	H	oxidoreductase
RLPCCGM1_c1615	-	-	transcriptional regulator, TetR family
RLPCCGM1_c1623	-	-	hypothetical protein
RLPCCGM1_c1646	-	-	hypothetical protein
RLPCCGM1_c1658	-	L	transposase
RLPCCGM1_c1712	-	-	hypothetical protein
RLPCCGM1_c1731	-	-	hypothetical protein
RLPCCGM1_c1732	-	-	hypothetical protein
RLPCCGM1_c1741	-	-	hypothetical protein
RLPCCGM1_c1750	-	K	GntR family transcriptional regulator
RLPCCGM1_c1797	-	-	hypothetical protein
RLPCCGM1_c1809	-	S	hypothetical protein
RLPCCGM1_c1821	-	-	hypothetical protein
RLPCCGM1_c1823	-	K	transcriptional regulator, TetR family
RLPCCGM1_c1837	-	J	hypothetical protein
RLPCCGM1_c1838	-	J	hypothetical protein
RLPCCGM1_c1839	-	J	tetracycline resistance protein
RLPCCGM1_c1864	-	-	hypothetical protein
RLPCCGM1_c1874	-	K	GntR family transcriptional regulator
RLPCCGM1_c1922	-	-	hypothetical protein
RLPCCGM1_c1991	-	-	hypothetical protein
RLPCCGM1_c2011	-	-	hypothetical protein
RLPCCGM1_c2012	-	L	adenine specific DNA methyltransferase, D12 class
RLPCCGM1_c2014	-	-	hypothetical protein
RLPCCGM1_c2015	-	-	hypothetical protein
RLPCCGM1_c2016	-	S	tail protein
RLPCCGM1_c2017	-	S	phage FluMu protein gp47
RLPCCGM1_c2018	-	-	hypothetical protein
RLPCCGM1_c2019	-	-	Mu-like prophage protein gp45-like protein
RLPCCGM1_c2020	-	R	Mu P family protein
RLPCCGM1_c2021	-	-	Mu-like prophage DNA circulation protein
RLPCCGM1_c2022	-	-	hypothetical protein
RLPCCGM1_c2024	-	-	hypothetical protein
RLPCCGM1_c2025	-	-	hypothetical protein
RLPCCGM1_c2026	-	R	Mu tail sheath family protein
RLPCCGM1_c2027	-	-	hypothetical protein
RLPCCGM1_c2028	-	-	hypothetical protein
RLPCCGM1_c2029	-	S	hypothetical protein
RLPCCGM1_c2030	-	-	hypothetical protein
RLPCCGM1_c2031	-	-	hypothetical protein
RLPCCGM1_c2032	-	R	Mu-like prophage FluMu major head subunit
RLPCCGM1_c2033	-	-	hypothetical protein
RLPCCGM1_c2034	-	R	Mu-like prophage I protein-like protein
RLPCCGM1_c2035	-	R	phage virion morphogenesis protein
RLPCCGM1_c2036	-	S	phage (Mu-like) virion morphogenesis protein
RLPCCGM1_c2037	-	S	Mu-like prophage FluMu protein gp29
RLPCCGM1_c2038	-	R	Mu-like prophage FluMu protein gp28
RLPCCGM1_c2039	-	-	Mu-like prophage FluMu protein gp27
RLPCCGM1_c2040	-	-	phage protein
RLPCCGM1_c2041	-	-	hypothetical protein

RLPCCGM1_c2042	-	-	hypothetical protein
RLPCCGM1_c2044	-	-	hypothetical protein
RLPCCGM1_c2045	-	-	hypothetical protein
RLPCCGM1_c2046	-	S	protein gp16
RLPCCGM1_c2047	-	-	hypothetical protein
RLPCCGM1_c2049	-	-	hypothetical protein
RLPCCGM1_c2053	-	R	bacteriophage DNA transposition protein B
RLPCCGM1_c2054	-	L	transposase
RLPCCGM1_c2055	-	-	hypothetical protein
RLPCCGM1_c2056	<i>parB</i>	K	chromosome partitioning protein parB
RLPCCGM1_c2057	-	-	hypothetical protein
RLPCCGM1_c2058	-	-	hypothetical protein
RLPCCGM1_c2060	-	-	hypothetical protein
RLPCCGM1_c2061	-	-	hypothetical protein
RLPCCGM1_c2062	-	-	hypothetical protein
RLPCCGM1_c2090	-	-	hypothetical protein
RLPCCGM1_c2198	-	S	extensin-like protein
RLPCCGM1_c2300	-	P	potassium channel protein
RLPCCGM1_c2329	-	-	transmembrane protein
RLPCCGM1_c2332	<i>pssR</i>	R	acetyltransferase
RLPCCGM1_c2333	<i>pssM</i>	-	ketal pyruvate transferase
RLPCCGM1_c2335	<i>pssK</i>	G	exopolysaccharide polymerization protein
RLPCCGM1_c2336	<i>pssJ</i>	-	galactosyltransferase
RLPCCGM1_c2363	-	M	mannose-1-phosphate guanylyltransferase
RLPCCGM1_c2364	<i>noeJ</i>	G	mannose-1-phosphate guanylyltransferase (GDP) protein
RLPCCGM1_c2410	-	-	hypothetical protein
RLPCCGM1_c2536	-	E	spermidine Putrescine ABC transporter permease component potC
RLPCCGM1_c2609	-	S	hypothetical protein
RLPCCGM1_c2657	-	K	transcriptional regulator IrhA
RLPCCGM1_c2751	-	K	acetyltransferase
RLPCCGM1_c3178	-	E	extracellular solute-binding protein
RLPCCGM1_c3185	-	J	amino acid--(acyl-carrier-protein) ligase
RLPCCGM1_c3186	-	-	serine--tRNA ligase protein
RLPCCGM1_c3201	-	G	transport protein
RLPCCGM1_c3278	<i>mltA</i>	M	membrane-bound lytic murein transglycosylase
RLPCCGM1_c3335	-	L	Superfamily I DNA/RNA helicase protein
RLPCCGM1_c3336	-	L	Superfamily I DNA/RNA helicase protein
RLPCCGM1_c3373	-	-	hypothetical protein
RLPCCGM1_c3374	-	L	integrase
RLPCCGM1_c3377	-	-	integrase family protein
RLPCCGM1_c3379	-	-	signal-transduction protein with CBS domain protein
RLPCCGM1_c3397	-	-	hypothetical protein
RLPCCGM1_c3424	<i>infB</i>	J	translation initiation factor IF-2
RLPCCGM1_c3462	<i>ftsK</i>	D	cell division protein
RLPCCGM1_c3595	-	E	hypothetical protein
RLPCCGM1_c3726	-	I	fatty acid desaturase
RLPCCGM1_c3727	-	K	ArsR family transcriptional regulator
RLPCCGM1_c3739	-	-	hypothetical protein
RLPCCGM1_c3750	-	K	TfoX domain protein
RLPCCGM1_c3753	-	-	two-component response regulator protein
RLPCCGM1_c3754	-	S	two-component response regulator protein
RLPCCGM1_c3849	<i>cspA</i>	K	cold shock protein
RLPCCGM1_c3880	-	-	hypothetical protein
RLPCCGM1_c4039	-	-	methyltransferase type 11

RLPCCGM1_c4052	-	M	glycosyl transferase
RLPCCGM1_c4053	-	Q	methyltransferase type 11
RLPCCGM1_c4055	-	-	hypothetical protein
RLPCCGM1_c4056	-	-	sugar transferase
RLPCCGM1_c4057	-	M	glycosyl transferase
RLPCCGM1_c4100	-	O	hypothetical protein
RLPCCGM1_c4131	-	D	scaffold protein for (4Fe-4S) cluster assembly ApbC, MRP-like protein
RLPCCGM1_c4178	-	I	acyl-CoA dehydrogenase
RLPCCGM1_c4179	-	I	cyl-CoA dehydrogenase protein
RLPCCGM1_c4207	-	T	diguanylate cyclase/phosphodiesterase with PAS/PAC sensor(s)
RLPCCGM1_c4228	-	F	hypothetical protein
RLPCCGM1_c4264	-	D	hypothetical protein
RLPCCGM1_c4269	-	-	hypothetical protein
RLPCCGM1_c4273	-	-	hypothetical protein
RLPCCGM1_c4277	-	-	acetyltransferase
RLPCCGM1_c4278	-	S	transcriptional regulator
RLPCCGM1_c4288	-	-	transmembrane protein
RLPCCGM1_c4303	-	Q	hypothetical protein
RLPCCGM1_p0013	-	R	phenazine biosynthesis protein PhzF
RLPCCGM1_p0014	-	P	manganese transport protein
RLPCCGM1_p0020	<i>cheR</i>	T	chemotaxis protein methyltransferase CheR
RLPCCGM1_p0022	-	T	hypothetical protein
RLPCCGM1_p0023	-	T	sensor histidine kinase
RLPCCGM1_p0026	-	-	transcriptional regulator, PadR family
RLPCCGM1_p0027	-	C	zinc-binding dehydrogenase
RLPCCGM1_p0028	-	-	hypothetical protein
RLPCCGM1_p0033	-	-	hypothetical protein
RLPCCGM1_p0036	-	-	hypothetical protein
RLPCCGM1_p0037	-	-	hypothetical protein
RLPCCGM1_p0038	-	S	hicB family protein
RLPCCGM1_p0040	-	M	potassium efflux system KefA protein
RLPCCGM1_p0041	-	P	arylsulfatase
RLPCCGM1_p0044	-	-	hypothetical protein
RLPCCGM1_p0048	-	-	hypothetical protein
RLPCCGM1_p0049	-	-	hypothetical protein
RLPCCGM1_p0050	-	-	hypothetical protein
RLPCCGM1_p0052	-	-	phosphoglycerate kinase
RLPCCGM1_p0054	-	-	cysteine rich repeat domain protein
RLPCCGM1_p0055	-	-	OmpA/MotB domain protein
RLPCCGM1_p0056	-	-	hypothetical protein
RLPCCGM1_p0057	-	P	hypothetical protein
RLPCCGM1_p0060	-	S	hypothetical protein
RLPCCGM1_p0067	-	-	hypothetical protein
RLPCCGM1_p0085	-	T	adenylate/guanylate cyclase
RLPCCGM1_p0087	-	-	hypothetical protein
RLPCCGM1_p0088	-	S	hypothetical protein
RLPCCGM1_p0090	-	-	hypothetical protein
RLPCCGM1_p0094	-	I	hypothetical protein
RLPCCGM1_p0105	-	E	prolyl endopeptidase
RLPCCGM1_p0108	-	-	transposase
RLPCCGM1_p0117	-	S	gifsy-2 prophage protein
RLPCCGM1_p0119	-	S	gifsy-2 prophage protein
RLPCCGM1_p0122	-	L	integrase/recombinase clustered with segregation and condensation protein B

RLPCCGM1_p0123	-	L	integrase/recombinase clustered with segregation and condensation protein B
RLPCCGM1_p0125	-	S	hypothetical protein
RLPCCGM1_p0134	-	G	TRAP-type C4-dicarboxylate transport system, periplasmic component
RLPCCGM1_p0135	-	-	hypothetical protein
RLPCCGM1_p0145	-	R	hydrolase of the alpha/beta superfamily
RLPCCGM1_p0151	-	E	FAD dependent oxidoreductase
RLPCCGM1_p0153	-	E	saccharopine dehydrogenase
RLPCCGM1_p0154	-	M	hypothetical protein
RLPCCGM1_p0156	-	F	hypothetical protein
RLPCCGM1_p0157	-	-	hypothetical protein
RLPCCGM1_p0158	-	K	TetR family transcriptional regulator
RLPCCGM1_p0161	<i>kce</i>	S	3-keto-5-aminohexanoate cleavage enzyme
RLPCCGM1_p0162	-	-	hypothetical protein
RLPCCGM1_p0167	-	S	hypothetical protein
RLPCCGM1_p0168	-	-	hypothetical protein
RLPCCGM1_p0181	-	-	TetR family transcriptional regulator
RLPCCGM1_p0183	-	I	oxidoreductase
RLPCCGM1_p0246	-	E	ABC transporter, periplasmic substrate-binding protein
RLPCCGM1_p0247	-	E	ABC transporter, periplasmic substrate-binding protein
RLPCCGM1_p0282	-	-	transcriptional regulator protein
RLPCCGM1_p0287	-	Q	isochorismatase hydrolase
RLPCCGM1_p0302	-	G	inner membrane component of tripartite multidrug resistance system
RLPCCGM1_p0318	-	R	NADP oxidoreductase coenzyme F420-dependent
RLPCCGM1_p0343	-	S	hypothetical protein
RLPCCGM1_p0344	-	-	hypothetical protein
RLPCCGM1_p0378	-	-	hypothetical protein
RLPCCGM1_p0439	-	R	hydrolase
RLPCCGM1_p0443	<i>hutU</i>	E	urocanate hydratase
RLPCCGM1_p0461	-	Q	ubiquinone/menaquinone biosynthesis methyltransferase ubiE
RLPCCGM1_p0470	-	S	hypothetical protein
RLPCCGM1_p0471	-	-	hypothetical protein
RLPCCGM1_p0472	-	-	hypothetical protein
RLPCCGM1_p0497	-	-	hypothetical protein
RLPCCGM1_p0498	-	R	ankyrin repeat-rich membrane spanning protein
RLPCCGM1_p0503	-	E	oligopeptide ABC transporter ATP-binding protein
RLPCCGM1_p0520	-	T	multi-sensor hybrid histidine kinase
RLPCCGM1_p0526	<i>copD</i>	P	copper resistance protein D
RLPCCGM1_p0527	-	R	hypothetical protein
RLPCCGM1_p0529	-	S	hypothetical protein
RLPCCGM1_p0531	-	L	hypothetical protein
RLPCCGM1_p0538	-	L	hypothetical protein
RLPCCGM1_p0539	-	L	transposase
RLPCCGM1_p0542	-	L	transposase
RLPCCGM1_p0543	-	L	insertion sequence IS21 ATP-binding protein
RLPCCGM1_p0549	-	L	insertion sequence ATP-binding protein
RLPCCGM1_p0551	-	L	retron-type RNA-directed DNA polymerase
RLPCCGM1_p0567	-	-	3-hydroxyalkanoate synthetase
RLPCCGM1_p0569	-	-	hypothetical protein
RLPCCGM1_p0570	-	-	monophenol monooxygenase
RLPCCGM1_p0571	-	L	insertion sequence transposase
RLPCCGM1_p0573	-	-	hypothetical protein
RLPCCGM1_p0574	-	-	hypothetical protein

RLPCCGM1_p0575	-	-	hypothetical protein
RLPCCGM1_p0597	-	-	hypothetical protein
RLPCCGM1_p0599	-	-	hypothetical protein
RLPCCGM1_p0602	-	L	transposase
RLPCCGM1_p0603	-	L	transposase
RLPCCGM1_p0612	-	L	transposase
RLPCCGM1_p0613	-	K	LysR family transcriptional regulator
RLPCCGM1_p0618	-	Q	L-ascorbate oxidase
RLPCCGM1_p0627	-	-	ABC transporter, permease protein
RLPCCGM1_p0634	-	T	two-component sensor histidine kinase/response regulator hybrid protein (FixL)
RLPCCGM1_p0643	-	P	cation transport P-type ATPase
RLPCCGM1_p0646	-	-	hypothetical protein
RLPCCGM1_p0647	-	-	hypothetical protein
RLPCCGM1_p0648	-	-	hypothetical protein
RLPCCGM1_p0649	-	-	hypothetical protein
RLPCCGM1_p0650	-	O	ATPase
RLPCCGM1_p0665	<i>nolL</i>	G	nodulation acetyltransferase
RLPCCGM1_p0674	-	C	hypothetical protein
RLPCCGM1_p0677	-	L	insertion sequence IS21 ATP-binding protein
RLPCCGM1_p0678	-	L	transposase
RLPCCGM1_p0685	<i>retA</i>	L	RNA-directed DNA polymerase RetA
RLPCCGM1_p0692	<i>xykB</i>	C	aryl-alcohol dehydrogenase
RLPCCGM1_p0693	-	G	deoxyribose-specific ABC transporter, permease protein
RLPCCGM1_p0706	-	L	hypothetical protein
RLPCCGM1_p0712	-	R	metallo-hydrolase
RLPCCGM1_p0718	-	-	transposase
RLPCCGM1_p0759	<i>nolO</i>	O	nodulation protein NolO
RLPCCGM1_p0768	-	L	insertion sequence transposase protein
RLPCCGM1_p0769	-	L	transposase
RLPCCGM1_p0775	<i>cpxP</i>	Q	cytochrome P450 monooxygenase
RLPCCGM1_p0780	-	L	hypothetical protein
RLPCCGM1_p0782	-	L	hypothetical protein
RLPCCGM1_p0784	-	-	hypothetical protein
RLPCCGM1_p0789	-	-	hypothetical protein
RLPCCGM1_p0807	-	L	transposase
RLPCCGM1_p0809	-	L	transposase
RLPCCGM1_p0811	-	L	insertion sequence transposase protein, IS21/IS408/IS1162 family
RLPCCGM1_p0812	-	L	IS21 family insertion sequence ATP-binding protein
RLPCCGM1_p0818	-	-	hypothetical protein
RLPCCGM1_p0849	<i>ooxA</i>	R	opine oxidase subunit A
RLPCCGM1_p0851	<i>ooxB</i>	E	opine oxidase subunit B
RLPCCGM1_p0858	-	-	2-haloacid dehalogenase protein
RLPCCGM1_p0884	-	O	heat shock protein 60 family chaperone GroEL
RLPCCGM1_p0889	-	R	multimeric flavodoxin WrbA
RLPCCGM1_p0929	-	S	hypothetical protein
RLPCCGM1_p0930	-	S	hypothetical protein
RLPCCGM1_p0937	-	-	hypothetical protein
RLPCCGM1_p1014	-	H	gamma-aminobutyratealpha-ketoglutarate aminotransferase
RLPCCGM1_p1015	-	H	gamma-aminobutyratealpha-ketoglutarate aminotransferase
RLPCCGM1_p1018	-	-	hypothetical protein
RLPCCGM1_p1148	-	-	hypothetical protein
RLPCCGM1_p1187	-	-	hypothetical protein
RLPCCGM1_p1188	-	-	hypothetical protein



RLPCCGM1_p1320	<i>amiF</i>	R	formamidase
RLPCCGM1_p1338	-	-	hypothetical protein
RLPCCGM1_p1349	<i>cheR</i>	N	chemotaxis methyltransferase
RLPCCGM1_p1350	<i>cheB</i>	N	chemotaxis protein-glutamate methylesterase
RLPCCGM1_p1352	-	T	two-component response regulator protein
RLPCCGM1_p1360	-	T	two-component sensor histidine kinase
RLPCCGM1_p1367	-	-	hypothetical protein
RLPCCGM1_p1369	-	S	hypothetical protein
RLPCCGM1_p1380	-	S	hypothetical protein
RLPCCGM1_p1393	-	L	hypothetical protein
RLPCCGM1_p1417	-	-	hypothetical protein
RLPCCGM1_p1486	<i>vbsA</i>	J	N6-hydroxylysine O-acetyltransferase
RLPCCGM1_p1514	-	R	multi-sensor signal transduction multi-kinase
RLPCCGM1_p1524	-	S	hypothetical protein
RLPCCGM1_p1525	-	L	addiction module antitoxin
RLPCCGM1_p1526	-	M	xylose isomerase
RLPCCGM1_p1527	-	G	periplasmic binding protein/LacI transcriptional regulator
RLPCCGM1_p1530	-	K	hypothetical protein
RLPCCGM1_p1532	-	G	fucose mutarotase
RLPCCGM1_p1535	-	Q	cytochrome P450-pinF2, plant-inducible
RLPCCGM1_p1539	-	-	hypothetical protein
RLPCCGM1_p1540	<i>syrB</i>	-	syrB regulator
RLPCCGM1_p1541	-	-	hypothetical protein
RLPCCGM1_p1542	-	-	hypothetical protein
RLPCCGM1_p1545	-	E	hypothetical protein
RLPCCGM1_p1550	-	G	extracellular solute-binding protein family 1
RLPCCGM1_p1554	-	-	inulin fructotransferase
RLPCCGM1_p1556	-	R	hypothetical protein
RLPCCGM1_p1558	<i>stcd</i>	C	oxidoreductase, FMN-binding protein
RLPCCGM1_p1562	-	P	ABC transporter substrate-binding protein
RLPCCGM1_p1564	-	P	binding-protein-dependent transport systems inner membrane component
RLPCCGM1_p1566	-	H	hypothetical protein
RLPCCGM1_p1567	-	T	two-component response regulator protein
RLPCCGM1_p1568	-	T	two-component sensor histidine kinase
RLPCCGM1_p1569	-	G	sugar ABC transporter substrate-binding protein
RLPCCGM1_p1571	-	G	inner-membrane translocator
RLPCCGM1_p1579	-	G	extracellular solute-binding protein family 1
RLPCCGM1_p1581	-	-	hypothetical protein
RLPCCGM1_p1582	-	S	hypothetical protein
RLPCCGM1_p1584	-	Q	hypothetical protein
RLPCCGM1_p1588	-	-	hypothetical protein
RLPCCGM1_p1592	-	S	hypothetical protein
RLPCCGM1_p1593	-	I	bifunctional 3-hydroxyacyl-CoA dehydrogenase/thioesterase
RLPCCGM1_p1594	-	I	acyl-CoA dehydrogenase
RLPCCGM1_p1595	-	C	acyl-CoA synthetase
RLPCCGM1_p1601	-	K	Cro/CI family transcriptional regulator
RLPCCGM1_p1603	-	R	peptidase
RLPCCGM1_p1607	-	R	hypothetical protein
RLPCCGM1_p1617	-	G	sugar ABC transporter substrate-binding protein
RLPCCGM1_p1618	-	-	hypothetical protein
RLPCCGM1_p1619	-	T	diguanylate cyclase
RLPCCGM1_p1621	-	E	sodium/glucose cotransporter
RLPCCGM1_p1624	-	T	two-component sensor histidine kinase

RLPCCGM1_p1630	-	E	homocysteine S-methyltransferase
RLPCCGM1_p1631	-	K	MarR family transcriptional regulator
RLPCCGM1_p1632	-	P	chloride channel protein
RLPCCGM1_p1634	-	P	aliphatic sulfonate ABC transporter substrate-binding protein
RLPCCGM1_p1638	-	G	sugar ABC transporter substrate-binding protein
RLPCCGM1_p1646	-	-	hypothetical protein
RLPCCGM1_p1647	-	G	sugar phosphate isomerase/epimerase
RLPCCGM1_p1650	<i>iolH</i>	G	inositol utilization protein H IolH
RLPCCGM1_p1656	<i>menG</i>	H	S-adenosylmethionine 2-demethylmenaquinone methyltransferase
RLPCCGM1_p1665	-	E	hypothetical protein
RLPCCGM1_p1666	-	E	hypothetical protein
RLPCCGM1_p1667	-	-	hypothetical protein
RLPCCGM1_p1670	-	K	transcriptional regulator, CopG family
RLPCCGM1_p1672	-	G	myo-inositol catabolism protein
RLPCCGM1_p1677	-	E	oxidoreductase
RLPCCGM1_p1692	-	-	hypothetical protein
RLPCCGM1_p1716	-	M	hypothetical protein
RLPCCGM1_p1723	-	R	hypothetical protein
RLPCCGM1_p1724	-	-	hypothetical protein
RLPCCGM1_p1725	-	-	hypothetical protein
RLPCCGM1_p1726	-	-	hypothetical protein
RLPCCGM1_p1727	-	T	membrane protein
RLPCCGM1_p1728	-	-	hypothetical protein
RLPCCGM1_p1729	-	-	hypothetical protein
RLPCCGM1_p1730	-	S	hypothetical protein
RLPCCGM1_p1731	-	P	FAD-dependent pyridine nucleotide-disulfide oxidoreductase
RLPCCGM1_p1733	-	S	hypothetical protein
RLPCCGM1_p1734	-	-	hypothetical protein
RLPCCGM1_p1736	-	-	ABC transporter integral membrane protein
RLPCCGM1_p1739	-	-	lipoprotein
RLPCCGM1_p1741	-	T	sensory histidine kinase QseC
RLPCCGM1_p1742	-	K	phosphosugar isomerase
RLPCCGM1_p1743	-	S	transmembrane protein
RLPCCGM1_p1744	-	T	hypothetical protein
RLPCCGM1_p1746	-	-	permeases of the drug/metabolite transporter (DMT) superfamily
RLPCCGM1_p1747	-	-	hypothetical protein
RLPCCGM1_p1748	-	R	carboxylesterase
RLPCCGM1_p1749	-	-	fatty acid desaturase
RLPCCGM1_p1750	-	G	hypothetical protein
RLPCCGM1_p1751	-	-	hypothetical protein
RLPCCGM1_p1753	-	E	phosphoserine phosphatase
RLPCCGM1_p1758	<i>rbsB</i>	G	ribose ABC transporter, substrate-binding protein
RLPCCGM1_p1762	-	K	GreA/GreB family elongation factor
RLPCCGM1_p1763	<i>rnk</i>	K	regulator of nucleoside diphosphate kinase
RLPCCGM1_p1768	-	-	cell division protein FtsH
RLPCCGM1_p1775	-	-	hypothetical protein
RLPCCGM1_p1788	-	-	hypothetical protein
RLPCCGM1_p1789	-	-	hypothetical protein
RLPCCGM1_p1827	-	-	hypothetical protein
RLPCCGM1_p1838	-	L	IS3 family transposase
RLPCCGM1_p1846	-	-	hypothetical protein
RLPCCGM1_p1857	<i>cheR</i>	N	chemotaxis methyltransferase
RLPCCGM1_p1858	<i>cheB</i>	N	chemotaxis protein-glutamate methyltransferase
RLPCCGM1_p1860	-	T	two-component response regulator protein

RLPCCGM1_p1868	-	T	two-component sensor histidine kinase
RLPCCGM1_p1875	-	-	hypothetical protein
RLPCCGM1_p1877	-	S	hypothetical protein
RLPCCGM1_p1888	-	S	hypothetical protein
RLPCCGM1_p1901	-	L	insertion sequence transposase
RLPCCGM1_p1942	-	-	transmembrane protein
RLPCCGM1_p1946	-	-	hypothetical protein
RLPCCGM1_p1949	-	G	extracellular solute-binding protein family 1
RLPCCGM1_p1971	-	-	hypothetical protein
RLPCCGM1_p2011	-	Q	isochorismatase
RLPCCGM1_p2022	-	H	dimethylmenaquinone methyltransferase
RLPCCGM1_p2023	-	K	IclR family transcriptional regulator
RLPCCGM1_p2024	-	E	dipeptide-binding ABC transporter
RLPCCGM1_p2029	-	-	hypothetical protein
RLPCCGM1_p2030	-	G	hypothetical protein
RLPCCGM1_p2032	-	T	sensory box/GGDEF family protein
RLPCCGM1_p2033	-	-	hypothetical protein
RLPCCGM1_p2035	<i>cpaB</i>	U	CpaB pilus assembly protein
RLPCCGM1_p2038	-	-	hypothetical protein
RLPCCGM1_p2039	-	U	hypothetical protein
RLPCCGM1_p2040	-	U	hypothetical protein
RLPCCGM1_p2041	-	U	pilus assembly protein
RLPCCGM1_p2046	-	O	AAA ATPase
RLPCCGM1_p2047	-	-	hypothetical protein
RLPCCGM1_p2048	-	U	hypothetical protein
RLPCCGM1_p2049	<i>nfeD</i>	O	nodulation competitiveness protein nfeD
RLPCCGM1_p2050	-	O	hypothetical protein
RLPCCGM1_p2058	-	K	AraC family transcriptional regulator
RLPCCGM1_p2060	-	K	GCN5 N-acetyltransferase
RLPCCGM1_p2067	-	I	MaoC dehydratase family protein
RLPCCGM1_p2070	<i>cpxA</i>	T	sensor protein CpxA
RLPCCGM1_p2072	-	M	efflux cation transporter protein
RLPCCGM1_p2074	-	-	hypothetical protein
RLPCCGM1_p2076	-	-	hypothetical protein
RLPCCGM1_p2077	-	G	hypothetical protein
RLPCCGM1_p2078	-	G	5-deoxy-glucuronate isomerase
RLPCCGM1_p2088	-	-	Leu/Ile/Val-binding protein
RLPCCGM1_p2090	<i>livH</i>	E	branched-chain amino acid ABC transporter
RLPCCGM1_p2092	-	C	hypothetical protein
RLPCCGM1_p2097	-	-	alpha-L-rhamnosidase
RLPCCGM1_p2098	-	G	extracellular solute-binding protein family 1
RLPCCGM1_p2104	<i>gmhA</i>	G	phosphoheptose isomerase
RLPCCGM1_p2105	-	M	glycosyl transferase family 2
RLPCCGM1_p2106	-	-	hypothetical protein
RLPCCGM1_p2107	-	-	hypothetical protein
RLPCCGM1_p2109	-	E	histidinol-phosphate phosphatase family protein
RLPCCGM1_p2110	-	R	GHMP kinase
RLPCCGM1_p2111	-	M	NAD-dependent epimerase/dehydratase
RLPCCGM1_p2112	-	-	FAD dependent oxidoreductase
RLPCCGM1_p2113	-	P	hypothetical protein
RLPCCGM1_p2119	-	-	hypothetical protein
RLPCCGM1_p2125	-	L	hypothetical protein
RLPCCGM1_p2127	-	S	hypothetical protein
RLPCCGM1_p2128	<i>tauA</i>	P	taurine uptake ABC transporter substrate-binding protein

RLPCCGM1_p2132	-	-	hypothetical protein
RLPCCGM1_p2137	-	Q	2-hydroxychromene-2-carboxylate isomerase
RLPCCGM1_p2138	-	C	oxidoreductase
RLPCCGM1_p2140	-	E	periplasmic binding protein
RLPCCGM1_p2141	-	E	amino acid ABC transporter substrate-binding protein
RLPCCGM1_p2143	-	K	acetyltransferase
RLPCCGM1_p2146	-	C	oxidoreductase
RLPCCGM1_p2149	-	-	hypothetical protein
RLPCCGM1_p2154	-	K	hypothetical protein
RLPCCGM1_p2155	<i>otsB</i>	G	trehalose-phosphatase
RLPCCGM1_p2159	-	G	sugar ABC transporter permease
RLPCCGM1_p2163	-	G	4-hydroxyphenylpyruvate dioxygenase
RLPCCGM1_p2165	-	G	extracytoplasmic solute receptor of TRAP-transport system
RLPCCGM1_p2167	-	G	small transmembrane subunit, TRAP-transport system
RLPCCGM1_p2169	-	T	two-component sensor histidine kinase
RLPCCGM1_p2171	-	-	hypothetical protein
RLPCCGM1_p2176	-	L	hypothetical protein
RLPCCGM1_p2177	-	R	general stress protein 26
RLPCCGM1_p2180	-	S	UDP-galactose-lipid carrier transferase
RLPCCGM1_p2182	-	L	hypothetical protein
RLPCCGM1_p2183	-	-	hypothetical protein

### ***Sinorhizobium americanum* CCGM7**

<b>ID</b>	<b>Name</b>	<b>COG</b>	<b>Function</b>
SAMCCGM7_Ch0113	-	-	hypothetical protein
SAMCCGM7_Ch0198	-	R	glutamate synthase [NADPH] large chain
SAMCCGM7_Ch0278	<i>ftsK</i>	D	cell division protein FtsK
SAMCCGM7_Ch0823	-	-	hypothetical protein
SAMCCGM7_Ch0897	-	E	transporter, LysE family
SAMCCGM7_Ch0913	-	-	hypothetical protein
SAMCCGM7_Ch0937	-	R	acetyltransferase
SAMCCGM7_Ch0973	-	-	hypothetical protein
SAMCCGM7_Ch1414	<i>smf</i>	L	DNA processing protein DprA
SAMCCGM7_Ch1426	-	-	hypothetical protein
SAMCCGM7_Ch1804	-	S	rhamnosyltransferase family protein
SAMCCGM7_Ch2020	-	-	hypothetical protein
SAMCCGM7_Ch2023	-	-	hypothetical protein
SAMCCGM7_Ch2148	-	R	secretion activator protein
SAMCCGM7_Ch2150	-	-	hypothetical protein
SAMCCGM7_Ch2151	-	R	methyltransferase
SAMCCGM7_Ch2207	-	-	hypothetical protein
SAMCCGM7_Ch2217	-	-	hypothetical protein
SAMCCGM7_Ch2238	-	R	SAM-dependent methyltransferase protein
SAMCCGM7_Ch2240	-	R	aldo/keto reductase
SAMCCGM7_Ch2248	-	-	hypothetical protein
SAMCCGM7_Ch2256	-	Q	2-hydroxychromene-2-carboxylate isomerase protein
SAMCCGM7_Ch2365	-	E	N-methyl-l-tryptophan oxidase
SAMCCGM7_Ch2642	-	-	hypothetical protein
SAMCCGM7_Ch2702	-	L	DNA methylase
SAMCCGM7_Ch2825	-	N	type IV pilus assembly protein
SAMCCGM7_Ch2829	-	O	GTP-binding protein EngA
SAMCCGM7_Ch2975	-	R	multidrug transporter
SAMCCGM7_Ch3017	-	-	hypothetical protein
SAMCCGM7_Ch3097	-	R	NADH dehydrogenase

SAMCCGM7_Ch3363	-	C	cytochrome c peroxidase
SAMCCGM7_Ch3364	-	C	cytochrome c peroxidase
SAMCCGM7_Ch3409	-	-	hypothetical protein
SAMCCGM7_Ch3413	-	V	type I restriction enzyme MjaXP M protein
SAMCCGM7_Ch3414	-	V	restriction endonuclease S subunit
SAMCCGM7_Ch3415	-	V	type I restriction enzyme hindVIIP R protein
SAMCCGM7_Ch3416	-	R	metal-dependent hydrolase
SAMCCGM7_Ch3419	-	-	hypothetical protein
SAMCCGM7_Ch3420	-	-	hypothetical protein
SAMCCGM7_Ch3421	-	-	hypothetical protein
SAMCCGM7_Ch3424	-	-	hypothetical protein
SAMCCGM7_Ch3426	-	L	integrase family protein
SAMCCGM7_Ch3465	-	R	AAA ATPase
SAMCCGM7_Ch3466	-	R	ATPase associated with various cellular activity, AAA_5
SAMCCGM7_Ch3499	<i>ligT</i>	J	2'-5' RNA ligase
SAMCCGM7_Ch3542	-	-	hypothetical protein
SAMCCGM7_Ch3594	-	-	hypothetical protein
SAMCCGM7_pA0005	-	-	hypothetical protein
SAMCCGM7_pA0011	-	L	hypothetical protein
SAMCCGM7_pA0012	-	L	hypothetical protein
SAMCCGM7_pA0013	-	-	hypothetical protein
SAMCCGM7_pA0015	-	J	hypothetical protein
SAMCCGM7_pA0020	-	X	transposase
SAMCCGM7_pA0021	-	L	transposase
SAMCCGM7_pA0023	-	-	hypothetical protein
SAMCCGM7_pA0025	-	-	hypothetical protein
SAMCCGM7_pA0026	-	-	hypothetical protein
SAMCCGM7_pA0037	<i>impM</i>	S	phosphatase ImpM
SAMCCGM7_pA0052	-	-	hypothetical protein
SAMCCGM7_pA0057	-	-	hypothetical protein
SAMCCGM7_pA0070	<i>parA</i>	N	ParA protein, plasmid partitioning protein
SAMCCGM7_pA0079	-	R	NAD(P)H dehydrogenase
SAMCCGM7_pA0081	-	H	pyridoxamine 5'-phosphate oxidase
SAMCCGM7_pA0121	<i>aacC</i>	V	aminoglycoside N(3')-acetyltransferase III
SAMCCGM7_pA0131	-	E	sarcosine dehydrogenase
SAMCCGM7_pA0133	-	E	saccharopine dehydrogenase
SAMCCGM7_pA0134	-	I	choline kinase
SAMCCGM7_pA0136	-	F	hydroxymethylpyrimidine transporter CytX
SAMCCGM7_pA0137	-	K	TetR family transcriptional regulator
SAMCCGM7_pA0140	-	R	3-keto-5-aminohexanoate cleavage enzyme
SAMCCGM7_pA0141	-	R	saccharopine dehydrogenase
SAMCCGM7_pA0142	<i>lpsI</i>	I	succinyl-CoA:3-ketoacid coenzyme A transferase subunit A
SAMCCGM7_pA0143	<i>lpsJ</i>	I	succinyl-CoA:3-ketoacid coenzyme A transferase subunit B
SAMCCGM7_pA0182	-	-	hypothetical protein
SAMCCGM7_pA0234	-	R	short-chain dehydrogenase/reductase SDR
SAMCCGM7_pA0235	-	K	TetR family transcriptional regulator
SAMCCGM7_pA0286	-	-	hypothetical protein
SAMCCGM7_pA0294	<i>fabG</i>	I	3-oxoacyl-[acyl-carrier protein] reductase
SAMCCGM7_pA0295	-	J	cytidine/deoxycytidylate deaminase family protein
SAMCCGM7_pA0297	<i>ubiE</i>	H	ubiquinone/menaquinone biosynthesis methyltransferase UbiE
SAMCCGM7_pA0298	-	E	L-asparaginase
SAMCCGM7_pA0301	-	-	hypothetical protein
SAMCCGM7_pA0302	-	P	alkaline phosphatase
SAMCCGM7_pA0303	-	K	two component system response regulator

SAMCCGM7_pA0304	-	K	hypothetical protein
SAMCCGM7_pA0311	-	K	transcriptional regulator, AraC family protein
SAMCCGM7_pA0315	-	K	transcriptional regulator, AraC family
SAMCCGM7_pA0316	-	O	hypothetical protein
SAMCCGM7_pA0318	-	C	NADPH:quinone oxidoreductase
SAMCCGM7_pA0353	<i>cya</i>	K	adenylate cyclase
SAMCCGM7_pA0354	<i>cya</i>	K	adenylate cyclase
SAMCCGM7_pA0357	-	U	T1SS secreted agglutinin RTX
SAMCCGM7_pA0368	-	R	plasmid stabilization protein
SAMCCGM7_pA0371	-	D	ParB domain protein nuclease
SAMCCGM7_pB0011	-	-	hypothetical protein
SAMCCGM7_pB0012	-	-	hypothetical protein
SAMCCGM7_pB0023	-	X	ISSod11, transposase
SAMCCGM7_pB0029	<i>traH</i>	L	conjugal transfer protein TraH
SAMCCGM7_pB0066	<i>nodS</i>	Q	nodulation protein NodS
SAMCCGM7_pB0096	-	-	hypothetical protein
SAMCCGM7_pB0097	-	-	hypothetical protein
SAMCCGM7_pB0098	-	R	extracellular protease
SAMCCGM7_pB0101	-	R	serine protease, subtilase family
SAMCCGM7_pB0102	-	-	hypothetical protein
SAMCCGM7_pB0103	-	-	hypothetical protein
SAMCCGM7_pB0105	-	-	hypothetical protein
SAMCCGM7_pB0116	<i>rpiR</i>	K	HTH-type transcriptional regulator RpiR
SAMCCGM7_pB0140	-	X	transposase
SAMCCGM7_pB0141	-	X	transposase
SAMCCGM7_pB0146	-	-	hypothetical protein
SAMCCGM7_pB0172	-	X	transposase for insertion sequence element IS1081
SAMCCGM7_pB0175	-	X	transposase
SAMCCGM7_pB0176	-	X	transposase
SAMCCGM7_pB0181	-	X	transposase
SAMCCGM7_pB0183	-	X	transposase
SAMCCGM7_pB0185	-	X	transposase
SAMCCGM7_pB0187	-	X	transposase
SAMCCGM7_pB0198	-	X	transposase for insertion sequence NGRIS-18a
SAMCCGM7_pB0201	<i>murE</i>	M	UDP-N-acetylmuramoyl-L-alanyl-D-glutamate--2, 6-diaminopimelate ligase
SAMCCGM7_pB0203	-	E	binding-protein-dependent transport system inner membrane protein
SAMCCGM7_pB0205	-	R	succinate dehydrogenase subunit
SAMCCGM7_pB0209	-	K	IclR family transcriptional regulator
SAMCCGM7_pB0210	-	X	integrase/recombinase y4rC
SAMCCGM7_pB0213	<i>ddpA</i>	E	D,D-dipeptide-binding periplasmic protein DdpA
SAMCCGM7_pB0220	-	M	peptidase M14
SAMCCGM7_pB0222	-	X	transposase
SAMCCGM7_pB0226	-	X	transposase
SAMCCGM7_pB0228	-	X	transposase
SAMCCGM7_pB0232	-	X	transposase
SAMCCGM7_pB0236	<i>ocd</i>	E	ornithine cyclodeaminase 1
SAMCCGM7_pB0238	-	E	D-serine deaminase
SAMCCGM7_pB0240	<i>argE</i>	E	acetylorithine deacetylase
SAMCCGM7_pB0243	-	L	transposase number 4 for insertion sequence NGRIS-4e
SAMCCGM7_pB0248	-	R	hypothetical protein
SAMCCGM7_pB0249	-	H	hypothetical protein
SAMCCGM7_pB0250	-	-	hypothetical protein
SAMCCGM7_pB0263	-	E	amino acid ABC transporter permease protein

SAMCCGM7_pB0267	-	-	hypothetical protein
SAMCCGM7_pB0268	-	J	archaeosine tRNA-ribosyltransferase type 5
SAMCCGM7_pB0269	-	-	hypothetical protein
SAMCCGM7_pB0270	-	R	queuosine Biosynthesis QueE Radical SAM
SAMCCGM7_pB0275	-	-	hypothetical protein
SAMCCGM7_pB0277	-	-	hypothetical protein
SAMCCGM7_pB0278	-	-	hypothetical protein
SAMCCGM7_pB0283	-	H	monooxygenase
SAMCCGM7_pB0288	-	X	transposase
SAMCCGM7_pB0294	<i>npt</i>	H	4'-phosphopantetheinyl transferase Npt
SAMCCGM7_pB0301	-	X	transposase
SAMCCGM7_pB0321	-	R	transcriptional regulator, AraC family
SAMCCGM7_pB0365	<i>hupB</i>	C	uptake hydrogenase large subunit
SAMCCGM7_pB0368	<i>chrA</i>	P	chromate transport protein ChrA
SAMCCGM7_pB0375	-	R	phosphatase
SAMCCGM7_pB0422	-	E	polar amino acid ABC transporter, inner membrane subunit
SAMCCGM7_pB0436	-	-	hypothetical protein
SAMCCGM7_pB0437	-	K	transcriptional regulator, TetR family
SAMCCGM7_pB0448	<i>pgl</i>	G	6-phosphogluconolactonase
SAMCCGM7_pB0467	-	-	hypothetical protein
SAMCCGM7_pC0022	-	K	transcriptional regulator, TetR family
SAMCCGM7_pC0023	-	G	cupin domain-containing protein
SAMCCGM7_pC0126	-	X	phage DNA invertase
SAMCCGM7_pC0135	-	-	hypothetical protein
SAMCCGM7_pC0136	-	T	DNA helicase, UvrD/REP family
SAMCCGM7_pC0137	<i>dnaK</i>	O	chaperone protein DnaK
SAMCCGM7_pC0138	-	-	hypothetical protein
SAMCCGM7_pC0139	-	-	hypothetical protein
SAMCCGM7_pC0144	<i>catB</i>	M	muconate cycloisomerase 1-1
SAMCCGM7_pC0146	<i>catA</i>	Q	catechol 1,2-dioxygenase
SAMCCGM7_pC0147	<i>cbdA</i>	P	2-halobenzoate 1,2-dioxygenase large subunit
SAMCCGM7_pC0148	<i>xyly</i>	Q	toluate 1,2-dioxygenase subunit beta
SAMCCGM7_pC0149	<i>benC</i>	H	benzoate 1,2-dioxygenase electron transfer component
SAMCCGM7_pC0151	<i>benK</i>	G	benzoate transport protein BenK
SAMCCGM7_pC0154	-	E	creatinase
SAMCCGM7_pC0155	<i>crnA</i>	H	creatinine amidohydrolase
SAMCCGM7_pC0157	-	E	ABC transporter substrate-binding protein
SAMCCGM7_pC0162	-	X	ISSod11, transposase
SAMCCGM7_pC0166	<i>mntH</i>	P	manganese transport protein MntH
SAMCCGM7_pC0168	-	-	hypothetical protein
SAMCCGM7_pC0169	<i>phaZ</i>	Q	poly(3-hydroxyalkanoate) depolymerase C
SAMCCGM7_pC0170	-	K	hypothetical protein
SAMCCGM7_pC0171	<i>cheR</i>	N	chemotaxis protein methyltransferase CheR
SAMCCGM7_pC0174	-	G	inosose isomerase
SAMCCGM7_pC0175	-	-	hypothetical protein
SAMCCGM7_pC0181	-	R	copper oxidase
SAMCCGM7_pC0182	-	D	multicopper oxidase type 3
SAMCCGM7_pC0183	-	M	copper resistance-like lipoprotein
SAMCCGM7_pC0186	-	-	hypothetical protein
SAMCCGM7_pC0190	-	-	hypothetical protein
SAMCCGM7_pC0191	-	R	surface polysaccharides/antigen
SAMCCGM7_pC0200	-	X	integrase/recombinase y4rB
SAMCCGM7_pC0202	-	X	transposase IS3/IS911 family protein
SAMCCGM7_pC0203	-	-	hypothetical protein

SAMCCGM7_pC0204	<i>hipA</i>	T	serine/threonine-protein kinase HipA
SAMCCGM7_pC0206	-	R	diguanylate cyclase/phosphodiesterase (GGDEF & EAL domains) with PAS/PAC sensor(s)
SAMCCGM7_pC0210	-	G	DMT superfamily inner membrane transporter protein
SAMCCGM7_pC0212	-	O	hypothetical protein
SAMCCGM7_pC0214	-	-	hypothetical protein
SAMCCGM7_pC0228	-	K	transcriptional regulator
SAMCCGM7_pC0266	-	H	hydrolase
SAMCCGM7_pC0272	-	-	hypothetical protein
SAMCCGM7_pC0273	-	T	TspO/MBR-related protein
SAMCCGM7_pC0275	-	R	beta-Ig-H3/fasciclin
SAMCCGM7_pC0276	-	G	transcriptional regulator
SAMCCGM7_pC0278	-	H	hypothetical protein
SAMCCGM7_pC0300	-	-	hypothetical protein
SAMCCGM7_pC0307	-	S	copper metallochaperone
SAMCCGM7_pC0309	-	P	copper binding protein
SAMCCGM7_pC0312	-	S	DoxX family protein
SAMCCGM7_pC0314	-	R	exoenzymes regulatory protein AepA precursor
SAMCCGM7_pC0316	-	H	hydrolase
SAMCCGM7_pC0319	-	V	endoribonuclease L-PSP
SAMCCGM7_pC0321	<i>ftsH</i>	D	cell division protein FtsH
SAMCCGM7_pC0328	-	K	transcriptional regulator
SAMCCGM7_pC0332	-	R	NAD(P)H dehydrogenase, quinone family, Nqo1-like
SAMCCGM7_pC0336	-	H	isochorismatase
SAMCCGM7_pC0343	-	R	CHRD protein
SAMCCGM7_pC0346	-	-	hypothetical protein
SAMCCGM7_pC0351	-	S	hypothetical protein
SAMCCGM7_pC0352	-	X	transposase
SAMCCGM7_pC0354	-	X	transposase
SAMCCGM7_pC0357	<i>prf</i>	C	gamma-aminobutyrate:alpha-ketoglutarate aminotransferase
SAMCCGM7_pC0363	-	R	histone acetyltransferase HPA2
SAMCCGM7_pC0364	-	P	Na <sup>+</sup> /H <sup>+</sup> antiporter protein
SAMCCGM7_pC0439	-	E	glutamate synthase [NADPH] large chain
SAMCCGM7_pC0492	<i>aprE</i>	O	subtilisin E
SAMCCGM7_pC0547	-	-	hypothetical protein
SAMCCGM7_pC0548	-	C	pseudoazurin
SAMCCGM7_pC0549	-	K	sensory box sensor histidine kinase/response regulator
SAMCCGM7_pC0550	-	K	HTH-type transcriptional regulator
SAMCCGM7_pC0557	<i>hpaH</i>	Q	2-oxo-hepta-3-ene-1,7-dioic acid hydratase
SAMCCGM7_pC0560	-	G	sugar phosphate isomerases/epimerase
SAMCCGM7_pC0566	-	M	5-carboxymethyl-2-hydroxymuconate delta-isomerase
SAMCCGM7_pC0568	-	R	oxidoreductase
SAMCCGM7_pC0573	-	H	epoxide hydrolase
SAMCCGM7_pC0574	-	H	epoxide hydrolase
SAMCCGM7_pC0585	-	I	hydrolase
SAMCCGM7_pC0588	-	S	membrane protein
SAMCCGM7_pC0589	-	K	TetR family transcriptional regulator
SAMCCGM7_pC0602	-	E	acetyltransferase
SAMCCGM7_pC0609	<i>pdxA</i>	R	4-hydroxythreonine-4-phosphate dehydrogenase
SAMCCGM7_pC0611	-	S	inner membrane protein
SAMCCGM7_pC0631	-	X	transposase
SAMCCGM7_pC0638	-	E	metal-activated pyridoxal enzyme
SAMCCGM7_pC0645	<i>thrA</i>	E	homoserine dehydrogenase
SAMCCGM7_pC0655	-	E	acetyltransferase



SAMCCGM7_pC0657	-	K	GntR family transcriptional regulator
SAMCCGM7_pC0659	-	T	homoserine kinase type II
SAMCCGM7_pC0662	-	T	multi-sensor signal transduction multi-kinase
SAMCCGM7_pC0673	-	T	transmembrane sensory box GGDEF/EAL family protein
SAMCCGM7_pC0675	-	Q	glyoxalase
SAMCCGM7_pC0676	-	J	histone acetyltransferase HPA2
SAMCCGM7_pC0686	-	H	isochorismatase
SAMCCGM7_pC0690	-	O	isoprenylcysteine carboxyl methyltransferase
SAMCCGM7_pC0693	-	M	NodT, RND efflux system, outer membrane lipoprotein
SAMCCGM7_pC0694	-	R	hypothetical protein
SAMCCGM7_pC0695	-	M	MltA-interacting MipA family protein
SAMCCGM7_pC0697	-	T	histidine kinase
SAMCCGM7_pC0698	-	-	hypothetical protein
SAMCCGM7_pC0702	-	R	beta-lactamase domain containing protein
SAMCCGM7_pC0713	-	I	lipase
SAMCCGM7_pC0714	-	H	signal peptide protein
SAMCCGM7_pC0721	-	P	sulfonate ABC transporter substrate-binding protein
SAMCCGM7_pC0740	-	-	hypothetical protein
SAMCCGM7_pC0741	-	R	methyltransferase type 11
SAMCCGM7_pC0745	-	R	NAD(P)H dehydrogenase
SAMCCGM7_pC0747	-	H	pyridoxamine 5'-phosphate oxidase
SAMCCGM7_pC0748	<i>soxY</i>	S	sulfur oxidation protein SoxY
SAMCCGM7_pC0749	<i>soxZ</i>	R	sulfur oxidation Z protein SoxZ
SAMCCGM7_pC0750	-	C	cytochrome c553
SAMCCGM7_pC0751	<i>fccB</i>	I	sulfide dehydrogenase (flavocytochrome C) flavoprotein subunit
SAMCCGM7_pC0753	-	C	hypothetical protein
SAMCCGM7_pC0754	-	T	metallophosphoesterase
SAMCCGM7_pC0755	-	C	lipoprotein
SAMCCGM7_pC0761	<i>fixN</i>	C	cytochrome c oxidase subunit 1
SAMCCGM7_pC0762	<i>fixO</i>	C	cytochrome C oxidase mono-heme subunit/FixO
SAMCCGM7_pC0766	-	P	heavy-metal-associated domain
SAMCCGM7_pC0769	-	C	cytochrome c peroxidase
SAMCCGM7_pC0778	-	G	major facilitator superfamily protein
SAMCCGM7_pC0781	-	P	high-affinity nickel-transporter
SAMCCGM7_pC0782	-	S	inner membrane protein
SAMCCGM7_pC0783	-	G	hypothetical protein
SAMCCGM7_pC0787	<i>nikA</i>	E	nickel-binding periplasmic protein NikA
SAMCCGM7_pC0788	-	K	sensor histidine kinase domain-containing protein
SAMCCGM7_pC0798	-	R	carboxymuconolactone decarboxylase
SAMCCGM7_pC0799	-	K	LysR family transcriptional regulator
SAMCCGM7_pC0816	-	-	hypothetical protein
SAMCCGM7_pC0817	<i>ligD</i>	L	ATP-dependent DNA ligase
SAMCCGM7_pC0819	<i>prtC</i>	V	serralysin C
SAMCCGM7_pC0821	-	X	transposase
SAMCCGM7_pC0823	<i>ligD</i>	L	ATP-dependent DNA ligase
SAMCCGM7_pC0826	-	-	hypothetical protein
SAMCCGM7_pC0827	-	-	hypothetical protein
SAMCCGM7_pC0831	-	-	hypothetical protein
SAMCCGM7_pC0834	<i>lpsZ</i>	M	lipopolysaccharide-processing protein LpsZ
SAMCCGM7_pC0835	<i>rkpL</i>	M	polysaccharide biosynthesis protein UDP-4-dehydro-6-deoxy-2-acetamido-D-glucose 4-reductase
SAMCCGM7_pC0837	<i>rkpN</i>	M	acylneuraminate cytidyltransferase
SAMCCGM7_pC0838	<i>rkpO</i>	M	polysaccharide biosynthesis protein
SAMCCGM7_pC0843	<i>lpsZ</i>	M	lipopolysaccharide-processing protein LpsZ

SAMCCGM7_pC0847	-	R	ATPase
SAMCCGM7_pC0848	-	R	filamentation induced by cAMP protein Fic
SAMCCGM7_pC0850	-	R	filamentation induced by cAMP protein Fic
SAMCCGM7_pC0872	-	-	hypothetical protein
SAMCCGM7_pC0873	<i>betA</i>	C	FAD dependent oxidoreductase
SAMCCGM7_pC0878	-	X	transposase
SAMCCGM7_pC0923	-	-	hypothetical protein
SAMCCGM7_pC1059	-	-	hypothetical protein
SAMCCGM7_pC1084	-	N	cellulose synthase catalytic subunit
SAMCCGM7_pC1137	-	R	carbon-nitrogen family hydrolase
SAMCCGM7_pC1140	-	I	transmembrane phospholipase protein
SAMCCGM7_pC1143	-	-	hypothetical protein
SAMCCGM7_pC1232	-	Q	hypothetical protein
SAMCCGM7_pC1266	<i>lhgO</i>	G	L-2-hydroxyglutarate oxidase LhgO
SAMCCGM7_pC1297	-	M	glycosyl transferase family protein
SAMCCGM7_pC1298	-	M	mannosyl transferase
SAMCCGM7_pC1308	-	D	CPSC/CAPB subfamily ATPase
SAMCCGM7_pC1323	-	G	hypothetical protein
SAMCCGM7_pC1324	-	U	HlyD family secretion protein
SAMCCGM7_pC1325	-	-	hypothetical protein
SAMCCGM7_pC1327	-	M	hypothetical protein
SAMCCGM7_pC1328	-	-	hypothetical protein
SAMCCGM7_pC1329	<i>pssL</i>	M	lipopolysaccharide biosynthesis protein wzxC
SAMCCGM7_pC1330	-	G	glycosyl transferase family protein
SAMCCGM7_pC1331	-	G	glycosyl transferase family protein
SAMCCGM7_pC1332	<i>hemL</i>	H	glutamate-1-semialdehyde 2,1-aminomutase
SAMCCGM7_pC1333	-	X	transposase for insertion sequence NGRIS-14b
SAMCCGM7_pC1335	-	G	LmbE-like protein
SAMCCGM7_pC1339	-	R	aminopeptidase
SAMCCGM7_pC1340	-	M	NAD-dependent epimerase/dehydratase
SAMCCGM7_pC1363	-	-	hypothetical protein
SAMCCGM7_pC1391	-	E	ABC transporter binding protein
SAMCCGM7_pC1481	-	-	hypothetical protein
SAMCCGM7_pC1485	-	X	insertion sequence IS407
SAMCCGM7_pC1548	-	R	threonine efflux protein
SAMCCGM7_pC1575	-	-	hypothetical protein
SAMCCGM7_pC1615	-	L	ATP-dependent DNA ligase YkoU
SAMCCGM7_pC1709	-	-	hypothetical protein
SAMCCGM7_pC1853	-	K	AraC family transcriptional regulator
SAMCCGM7_pC1940	-	O	small heat shock protein
SAMCCGM7_pC1945	-	S	arsenate reductase
SAMCCGM7_pC1947	-	O	ABC-type transport, permease protein
SAMCCGM7_pC1951	<i>fabG</i>	I	3-oxoacyl-ACP reductase
SAMCCGM7_pC1973	-	J	cytidine/deoxycytidylate deaminase family protein
SAMCCGM7_pC2005	-	T	HipA protein
SAMCCGM7_pC2006	<i>spsA</i>	K	transcription regulator, symbiotic plasmid stability locus
SAMCCGM7_pC2008	-	E	alpha/beta hydrolase family protein
SAMCCGM7_pC2009	-	I	hypothetical protein
SAMCCGM7_pC2012	-	R	transporter
SAMCCGM7_pC2013	-	K	transcriptional regulator
SAMCCGM7_pC2014	-	-	hypothetical protein
SAMCCGM7_pC2015	-	O	cysteine protease
SAMCCGM7_pC2045	-	X	ISSod11, transposase
SAMCCGM7_pC2047	-	P	sulfatase

SAMCCGM7_pC2051	-	G	sugar ABC transporter substrate-binding protein
SAMCCGM7_pC2053	-	G	ABC transporter permease
SAMCCGM7_pC2055	-	I	glycerophosphoryl diester phosphodiesterase
SAMCCGM7_pC2057	-	-	hypothetical protein
SAMCCGM7_pC2060	-	R	myo-inositol 2-dehydrogenase 1
SAMCCGM7_pC2062	-	R	short-chain oxidoreductase
SAMCCGM7_pC2064	-	P	sulfur reduction protein DsrE
SAMCCGM7_pC2065	-	R	beta-lactamase domain-containing protein
SAMCCGM7_pC2069	-	K	transcriptional regulator
SAMCCGM7_pC2073	-	X	ISSod11, transposase
SAMCCGM7_pC2074	<i>glcF</i>	C	glycolate dehydrogenase, iron-sulfur subunit GlcF
SAMCCGM7_pC2082	-	C	flavoheмоprotein
SAMCCGM7_pC2084	-	C	acetamidase
SAMCCGM7_pC2085	-	K	helix-turn-helix-domain containing protein AraC type
SAMCCGM7_pC2086	-	Q	alkyl sulfatase
SAMCCGM7_pC2092	-	X	transposase for insertion sequence element
SAMCCGM7_pC2093	-	-	hypothetical protein
SAMCCGM7_pC2094	-	R	alpha/beta hydrolase
SAMCCGM7_pC2099	-	K	ArsR family transcriptional regulator
SAMCCGM7_pC2102	<i>ooxB</i>	E	opine oxidase subunit B
SAMCCGM7_pC2104	<i>soxA</i>	I	sarcosine oxidase subunit alpha
SAMCCGM7_pC2106	-	-	hypothetical protein

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